

Claim 11 (currently amended)

A fin for self-propulsion in a fluid,

the fin comprising a blade constructed of a relatively rigid material, a shoe made of a first relatively yielding material, and a plurality of generally lateral ribs extending along lateral edge portions of the blade, the lateral ribs having a lining extending therefrom, the lining being constructed of a second relatively yielding material that enlarges at flank portions of the shoe, such that a sideways projecting fairing is generated, the blade comprising a plurality of arms that extend backwardly therefrom to form containment flanks for the shoe and terminate with respective seatings for buckles of a closure strap, the fairings projecting sideways to a thickness of not less than that of the respective buckle, wherein the buckle comprises a connection head that extends from its inner face, the seating for the buckle comprising a hood that is generally convex toward the outside and has a shaped central opening with which the correspondingly shaped head of the buckle engages, so that the connection is subsequently made by rotating the head through 90° within the opening. [The fin set forth in claim 10, wherein] the connection head [is] being rotatably engaged in the opening of the hood.

REMARKS

Reconsideration of this Application is respectfully requested. Applicant wishes to thank the Examiner for identifying the allowable subject matter of claims 10 and 11. Claims 10 and 11 have been amended, accordingly, and placed in independent form, each to include all of the elements of base claim 9 and claim 11 to also include the elements of intervening claim 10. In addition, claim 5 has been amended to depend from claim 4,

and claim 8 has been amended to depend from claim 2. Claims 1-11 are in this case, claims 1, 9, 10 and 11 of which are independent claims. A Credit Card Payment Form for \$100.00 is filed herewith for submission of independent claims in excess of three.

Initially, the Examiner objected to the drawings under 37 C.F.R. § 1.83(a) on grounds that every feature of the invention specified in the claims must be shown. The Examiner explained that the “fairings” projecting sideways to a thickness not less than that of the respective buckle (claims 6 and 9) must either be shown or the feature(s) cancelled from the claims. The Examiner noted that no new matter should be entered. He stated, in addition, that corrected drawing sheets are required in reply to the Office Action to avoid abandonment of the Application.

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Regarding the Examiner’s objection to the drawings, however, Applicant respectfully disagrees. In particular, Applicant respectfully directs the Examiner to FIG. 7, items 19 and 20, and to page 7, lines 3-7 of the Specification, which states:

The cross section of lining 17 becomes considerably thicker along these flanks to generate respective fairings 19 that convey the water flow to above a pair of buckles 20 arranged at the two ends of a strap 21 that closes the shoe.

The “fairings projecting sideways to a thickness of not less than that of the respective buckle” referred to above, we submit, are shown in FIG. 7. Applicant notes, in this connection, that this feature provides considerable reduction in hydrodynamic resistance due to the presence of the buckle.

Withdrawal of the Examiner’s objection is, therefore, respectfully requested.

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Also, the Examiner objected to claims 1, 5 and 8-10 on grounds of informalities. More particularly, the Examiner indicates that claim 1 recites “a relatively yielding material” in both line 3 and lines 8-9 when referring to the same element. Similarly, the Examiner notes that claim 9 recites “a relatively yielding material” in line 3 and “a yielding material” in line 6 when referring to the same material. In addition, the Examiner states that there is insufficient antecedent basis for the limitation “the closure strap” recited in claim 5 (line 4) and claim 9 (line 10), and for the limitation “the lining of the lateral ribs” in claim 8 (lines 3-4). The Examiner comments that a positive recitation will be assumed for examination of claims 5 and 9. As for claim 8, the Examiner notes that as the lining is positively recited in claim 2, it will be assumed that claim 8 depends from claim 2 in stead of claim 1. Last, the Examiner asserts that the word “enlarges” in claim 10 (line 5) should be - - engages - -.

The Examiner then rejected claim 6 under 35 U.S.C. § 112, second paragraph, for indefiniteness. More particularly, the Examiner finds that there is insufficient antecedent basis in claim 6 for the limitation “the lining of the ribs” in line 2 or “the lateral fairings” in lines 2-3. The Examiner explains that while the “lining” and “fairings” are positively recited in claims 2 and 4, respectively, it can’t be assumed that claim 6 depends from claim 4 because claim 6 refers to elements of claim 5. He, therefore, concludes that the scope of claim 6 is unclear.

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In response, claims 1 and 9 are amended to recite - - a **first** relatively yielding material - - and - - a **second** relatively yielding material - -. (emphasis added). The term - - relatively - - is voluntarily added to the term “a yielding material” in line 6 of claim 9 for

consistency and to better define the invention without limiting effect. Also, Applicant notes that while in a specific, illustrative embodiment described in the Specification, the first and second relatively yielding materials are the same material, such is not required.

Additionally, the limitation “the closure strap” in each of claims 5 and 9 has been amended to read - - a closure strap - - for proper antecedent basis. Similarly, claim 8 is amended to depend from claim 2 rather than claim 1 to provide antecedent basis for “the lining of the lateral ribs”. With respect to claim 10, the word “enlarges” has been changed to - - engages - -.

Finally, Applicant submits that claim 6 has been better defined without limiting effect by amending claim 5 (upon which claim 6 depends) to depend from claim 4 rather than claim 1.

Thus, withdrawal of the Examiner’s objections and rejection under § 112 is considered appropriate.

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Next, the Examiner rejected claim 1 under 35 U.S.C. § 102(b) as being anticipated by Garofalo, U.S. Patent No. 5,443,593. Specifically, the Examiner takes the position that Garofalo shows a swim fin with a shoe (2) and a blade (1) with lateral ribs (5). The Examiner explains that the shoe is made of soft material, and that the blade is made of a more rigid material (citing column 1, lines 60-65). He also states that the blade has longitudinal slots (102, 102') and openings (101, 101'). The slots, the Examiner continues, are symmetric about the long axis of the fin. In addition, he finds that the openings extend diagonally from the shoe toward the lateral edges of the blade at least along a portion of the opening. Further, the Examiner notes that the slots and openings are filled with the

same material as that of the shoe (referencing column 2, lines 3-5).

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Applicant, however, respectfully disagrees with the Examiner's reading and application of Garofalo to the present invention.

First, Applicant submits, Garofalo discloses a fin having a pair of inner slits 102, 102' symmetrically arranged with respect to the longitudinal axis of the fin, and a pair of outer slits 101 and 101' that are substantially parallel to the inner slits and, more precisely, extend parallel to the longitudinal side of the fin ending at the shoe edge. Unlike Garofalo, Applicant's fin does not have a pair of outer slits, but rather a pair of diagonal slits that extend in a substantially transverse direction, from the longitudinal side of the fin to the shoe edge. Moreover, the outer slits of Garofalo extend from the shoe up to the front edge of the fin (or free edge), whereas in the fin, according to the present invention, two diagonal openings extending from the side (or longitudinal) edge of the blade to the shoe are provided.

The foregoing is not just a structural difference, as it also achieves a considerably different and improved effect. Specifically, Garofalo purports to provide flow channels with opposite concavities on the fin blade. Applicant's invention, on the other hand, provides the blade with longitudinal and diagonal hinges. This enables the blade to assume a concave shape during propulsion, somewhat like that of a spoon.

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Thereafter, the Examiner rejected claims 2 and 8 under 35 U.S.C. § 103(a) as being obvious and, therefore, unpatentable over Garofalo in view of Semeia, U.S. Patent No. 6,568,974. Initially, with respect to claim 2, the Examiner admits that Garofalo does

not show ribs (5) lined with the soft material. He then looks to Semeia as showing a frame (4) of rigid material, and the remainder of the swim fin, including the shoe, slots and openings in the frame, as well as a lining around lateral edges of the frame being of a softer material. The Examiner concludes that it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Garofalo by lining ribs (5) with a softer material, as allegedly taught by Semeia. The motivation, the Examiner explains, would be to optimize the feel and hydrodynamic efficiency of the swim fin.

Regarding claim 8, the Examiner asserts that Garofalo shows a curb (401) at the front free edge of the blade. The curb, he asserts, is made of soft material and connects the soft material in the slots and openings. Semeia, says the Examiner, shows that the lining of the ribs extends all the way to the front edge of the ribs. Therefore, the Examiner determines, the lining would intersect the curb.

Furthermore, the Examiner rejected claims 3 and 4 under 35 U.S.C. § 103(a) as obvious and, therefore, unpatentable over Garofalo in view of Semeia, as applied to claim 2 above, and further in view of Mehrmann et al., U.S. Patent No. 6,224,443. More particularly, Semeia purportedly teaches that two or more different materials can be used for making the various parts of the frame, which includes the lateral ribs. According to the Examiner, Mehrmann et al. show a flipper made of materials having different hardnesses. The shoe, the Examiner explains, can be made of soft 30 durometer material, the bade of rigid 90 durometer material, and the lateral ribs of intermediate 80 durometer material. Therefore, the Examiner concludes that it would have been obvious to one having ordinary skill in the art at the time the invention was made to further modify Garofalo by

making the ribs of a material with intermediate hardness. The motivation, he says, would be to optimize the hydrodynamic performance of the swim fin.

With specific regard to claim 4, the Examiner takes the position that Garofalo and Semeia show that the ribs enlarge in the rearward direction. Therefore, the Examiner determines, the lining on the rib would also enlarge along with the rib. He notes that the structure can be considered a fairing.

Additionally, the Examiner rejected claims 5 and 7 under 35 U.S.C. § 103(a) as being obvious and, therefore, unpatentable over Garofalo in view of Takizawa, U.S. Patent No. 5,304,081. The Examiner acknowledges that Garofalo does not show the rearward extent of the blade or the connections for a strap. However, he asserts, Garofalo does show that the lateral rib portion of the blade flanks the foot pocket, and that portions of the blade form flanks at the sides of the front part of the shoe. He looks to Takizawa for purportedly showing a swim fin with a shoe, and a blade with lateral ribs, the ribs allegedly extending rearward to form flanking portions of the shoe. The portions, the Examiner continues, terminate in a hood with a seating for buckle (5) to engage. He concludes that it would have been obvious to modify Garofalo by extending the ribs rearward and providing a seating for a buckle of a strap. According to the Examiner, the motivation would be to provide a known apparatus for connecting a heel strap for the purpose of keeping a user's foot inside the pocket.

As for claim 7, the Examiner states that the thickness of section (3) in Garofalo, from the bottom of the curvature to the top of the flat portion as shown in FIG. 2, is greater than the thickness of any portion of the blade.

Finally, the Examiner rejected claim 9 under 35 U.S.C. 103(a) as being obvious

and, therefore, unpatentable over Garofalo in view of Semeia and Takizawa. The Examiner reiterates that Garofalo shows a swim fin with a shoe (2) and a blade (1). The shoe, he says, is made of a soft material, the blade is constructed of a more rigid material (citing column 1, lines 60-65), and the blade has lateral ribs (5). In addition, the Examiner states that Semeia shows a swim fin with a composite structure like that of Garofalo, and that Semeia shows a frame (4) of rigid material, the remainder of the swim fin, including the shoe and a lining around lateral edges of the frame, allegedly being of a softer material. Therefore, the Examiner concludes that it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Garofalo by lining the ribs (5) with the softer material as taught by Semeia. The motivation, he says, would be to optimize the feel and hydrodynamic performance of the swim fin.

The Examiner again acknowledges that while Garofalo does not show the rearward extent of the blade or the connections for a strap, he does show that the lateral rib portion of the blade flanks the foot pocket, and that portions of the blade form flanks at the sides of the front part of the shoe. Accordingly, the Examiner looks to Takizawa which, he alleges, shows a swim fin with a shoe, and a blade with lateral ribs, the ribs allegedly extending rearward to form flanking portions of the shoe. The portions, the Examiner asserts, terminate in a hood with a seating for buckle (5) to engage. On this basis, the Examiner concludes, as before, that it would have been obvious to modify Garofalo by extending the ribs rearwardly and providing a seating for a buckle for a strap. The motivation, the Examiner states, would be to provide a known apparatus for connecting a heel strap for the purpose of keeping a user's foot inside the pocket.

He notes that the term "sideways" is not given any relative meaning the claim.

Furthermore, the Examiner states that the lateral rib (6) of Takizawa extends sideways in a direction from the bottom of the shoe toward the top of the shoe. In this direction, he finds, the rib has a thickness not less than that of the buckle (5).

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Applicant, however, respectfully disagrees with the Examiner's reading and application of the cited references to the present invention. In particular, with respect to claim 2, Applicant states in the Specification (as amended), from page 1, line 24 to page 2, line 7, that:

In order to protect against scratches and cuts that may result when the fin comes into contact with reefs, stones and the like, longitudinal edges of the blade are often lined with a yielding material like that of the material comprising the shoe. More particularly, such lining is formed in lateral ribs that generally extend both above and below the plane of the blade so as to improve the propulsive efficacy of the fin without increasing the overall rigidity of the blade. According to a previous invention of the same applicant, these ribs may be constructed of a material having a rigidity intermediate between that of the shoe and the blade. In this manner, the designer has much more freedom of choice in the hydrodynamic and mechanical characteristics of the fin, which are often in contrast with each other.

It is respectfully submitted that the combination of lateral ribs "at least partially lined with the relatively yielding material of the shoe", as set forth by Applicant's claim 2, with the features of claim 1, provides considerable improvement in the "spoon effect" of the fin. Such, Applicant respectfully states, is neither disclosed nor suggested by the teachings of Semeia or Garofalo, whether taken alone or in any combination.

In addition, neither Garofalo nor Semeia disclose or suggest a fin with an enlarged front edge formed with the same lining of the side edges as set forth in Applicant's claim

8. To the contrary, we respectfully submit, in combining Garofalo with Semeia, the formation of such flow channels would be blocked by the enlarged edge.

Garofalo and Semeia, we submit, also do not teach or suggest the elements of Applicant's claim 4, namely, a fin wherein the "lining of the lateral ribs enlarges rearwardly along flank portions of the shoe so as to form respective sideway projecting fairings", nor features of claim 9, e.g., "lateral ribs having a lining extending therefrom, the lining being constructed of a second relatively yielding material that enlarges at flank portions of the shoe, such that a sideways projecting fairing is generated".

Similarly, Takizawa does not show operative elements of claims 5 and 9, that is, respectively, a fin having a blade that "extends rearwardly by two arms forming containment flanks for the shoe and terminating with a hood to form a seating in which a respective buckle of a closure strap can engage" or "fairings projecting sideways to a thickness of not less than that of the respective buckle". Takizawa specifically discloses a fin having a rear portion of the blade formed of a flat portion with raised sides for holding the shoe. This is contrary to Applicant's fin wherein a rear portion of the blade is formed by two arms defining a cavity therebetween with hoods for attaching the buckles at the end of the arms. Takizawa (FIG. 1) additionally utilizes a buckle that projects significantly from the side profile of the fin, thereby producing hydrodynamic resistance that is virtually eliminated by Applicant's invention.

Finally, with regard to claim 7, the Examiner states that the thickness of section (3) in Garofalo, from the bottom of the curvature to the top of the flat portion as shown in FIG. 2, is greater than the thickness of any portion of the blade. While the thickness of the material forming section (3) in Garofalo may, according to the drawings, be equal to the

thickness of the blade, Applicant disagrees that such is “greater than” the thickness of any portion of the blade. Either way, Applicant’s claim, unlike Garofalo, provides that the thickness of the flattened ribs is greater than that of the blade. Applicant respectfully disagrees that the Examiner’s measurement is apposite, given the purposes for which the inventions are intended.

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Notwithstanding the foregoing, the Examiner indicates that claims 10 and 11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form to include all of the limitations of the base claim and any intervening claims.

Accordingly, claims 10 and 11 have been amended and placed in independent form, each to include all of the elements of base claim 9 and claim 11 to also include the elements of intervening claim 10. Dependent claim 5 has been amended to depend from dependent claim 4 rather than independent claim 1, and dependent claim 8 has been amended to depend from claim 2 instead of claim 1.

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Applicant respectfully submits that none of the cited references, whether taken alone or in combination, disclose or suggest Applicant’s invention, as claimed. Withdrawal of the Examiner’s rejections under §§ 102(b) and 103(a) is, therefore, respectfully requested.

Applicant respectfully notes that, through the undersigned counsel, he has undertaken to amend the Specification to further comport with U.S. practice and, in so doing, to better define the invention without limiting effect.

In so doing, Applicant has made a good faith attempt to place this Application in condition for allowance. Favorable action is requested. If there is any further point requiring attention prior to allowance, the Examiner is asked to contact Applicants' counsel at (646) 265-1468.

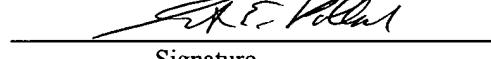
Respectfully submitted,



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on January 28, 2004
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